

Amendments to the Claims:

1-20. (Canceled).

21. (Currently Amended) A method of changing a functional surface binding specificity of a PAS domain, wherein the PAS domain is predetermined, prefolded in its native state, and comprises a hydrophobic core that has no NMR-apparent a priori formed ligand cavity, the method comprising the steps of:

introducing into the hydrophobic core of the PAS domain a foreign ligand of the PAS domain; and

detecting a resultant change in the functional surface binding specificity of the PAS domain,

wherein the PAS domain is HIF2a PAS B, and the binding specificity is a change in intramolecular binding affinity of the PAS domain, detected as a change in chemical shifts detected by $^1\text{H}/^{15}\text{N}$ -HSQC NMR, wherein PAS refers to Per-ARNT-Sim, ARNT refers to aryl hydrocarbon receptor nuclear translocator, and HIF2a refers to hypoxia inducible factor 2 alpha.

22. (Currently Amended) A method of changing a functional surface binding specificity of a PAS domain, wherein the PAS domain is predetermined, prefolded in its native state, and comprises a hydrophobic core that has no NMR-apparent a priori formed ligand cavity, the method comprising the steps of:

introducing into the hydrophobic core of the PAS domain a foreign ligand of the PAS domain; and

detecting a resultant change in the functional surface binding specificity of the PAS domain,

wherein the PAS domain is HIF2a PAS B₁ and is present as part of HIF2a, and the binding specificity is a change in intermolecular binding affinity of the PAS domain detected as a change in transcription complex formation of DNA: the HIF-2a; ARNT.